Status of the Claims

This listing of claims will replace all prior versions, and listings of claims in the application.

1-36 (cancelled)

37. (previously presented) A spatial light modulator configured to receive an incident wavefront, comprising:

a continuous solid and substantially rigid substrate having a surface; and

a plurality of individual actuators formed on the surface of the substrate and separated laterally from one another thereby forming a two dimensional array, each of the individual actuators having a mirror formed on an actuator element section, the actuator element section including an actuator element that is sandwiched by a pair of electrodes,

wherein for each of the individual actuators, the mirror is formed so that when the electrode pair is energized the individual actuator moves the mirror with respect to the surface of the substrate, such that the incident wavefront is modulated to produce an output wavefront.

38. (previously presented) The spatial light modulator of claim 37, wherein the individual actuators are configured to move the mirrors in two directions to modulate the incident wavefront.

39. (previously presented) The spatial light modulator of claim 37, wherein the individual actuators are configured to move the mirrors in four directions to modulate the incident wavefront.

40. (previously presented) The spatial light modulator of claim 37, wherein one electrode in each of the pairs of electrodes is formed between the individual actuator and the substrate and includes a plurality of spaced apart electrode portions.

41. (previously presented) The spatial light modulator of claim 40, wherein the plurality of spaced apart electrode portions are configured to allow the individual actuators to tilt the mirrors to modulate the incident wavefront.

42. (previously presented) The spatial light modulator of claim 37, further comprising:

a coupling device connecting the individual actuators.

43. (previously presented) The spatial light modulator of claim 37, wherein adjacent ones of the individual actuators have different heights.

44. (previously presented) The spatial light modulator of claim 37, wherein the individual actuators move the mirrors about one-quarter of a wavelength of light in each direction to modulate the incident wavefront.

45. (previously presented) The spatial light modulator of claim 37, wherein the individual actuators are configured such that the mirrors form an overall curved shape.

46. (previously presented) The spatial light modulator of claim 37, wherein the mirrors are positioned in default positions at varying heights with respect to a plane formed by the surface of the substrate, such that varying output wavefront patterns are generated by the incident wavefront reflecting therefrom.

47. (previously presented) The spatial light modulator of claim 37, wherein that pairs of electrodes cause a material of the individual actuators to expand and contract in a piston-like motion to move the mirrors along a longitudinal axis of the individual actuators, wherein during the piston-like motion a reflecting surface of the mirror remains parallel to a plane formed through the surface of the substrate to modulate the incident wavefront.

48. (currently amended) The spatial light modulator of claim [[39]] 47, wherein the material comprises one of lead zirconate titanate (PZT), zinc oxide (ZnO), or polyvinylidene fluoride (PVDF) polymer films.

49. (previously presented) The spatial light modulator of claim 37, wherein the mirrors modulate respective portions of the incident wavefront through actuation with respect to each other, which causes at least one of a phase shift or interference pattern in an output wavefront.

50. (previously presented) The spatial light modulator of claim 37, wherein the individual actuators are connected to each other, such that movement of each of the individual actuators is controlled with respect to each other to form an overall desired reflecting configuration of the mirrors to modulate the incident wavefront.

51. (previously presented) The spatial light modulator of claim 37, wherein the surface of the substrate provides a common reference plane for a reflecting surface of each of the mirrors, such that the reflecting surfaces of the mirrors are actuated with respect to each other to modulate the incident wavefront.

52. (previously presented) The spatial light modulator of claim 37, further comprising:

an insulating layer coupled to the substrate that dissipates heat generated by the pairs of electrodes.

53. (previously presented) The spatial light modulator of claim 37, wherein the pairs of electrodes are energized to cause a material of the individual actuators to expand and contract to move the mirrors in a plurality of directions relative to a longitudinal axis of each of the individual actuators, wherein the movement causes a reflecting surface of the mirrors to become unparallel to a plane parallel to the surface of the substrate to modulate the incident wavefront.

54. (previously presented) A method of forming a spatial light modulator that receives an incident wavefront and modulates the incident wavefront, comprising:

forming a plurality of individual actuators including actuation element sections on a surface of a continuous solid and substantially rigid substrate, the plurality of individual actuators being separated laterally from one another thereby forming a two dimensional array;

forming electrodes at opposite ends of each respective actuator element in each respective one of the actuator element sections; and

forming a mirror on each of the individual actuator sections;

wherein, for each of the individual actuators, the mirror is formed so that when the electrode pair is energized the individual actuator moves the mirror with respect to the surface of the substrate, such that the incident wavefront is modulated to produce an output wavefront.

55. (previously presented) A method, comprising:

receiving an incident wavefront on a two dimensional array of mirrors; and

moving respective ones of the mirrors through energizing of electrode pairs formed at opposite ends of corresponding actuator elements in corresponding ones of actuator element sections of corresponding ones of a plurality of individual actuators formed on a surface of a continuous solid and substantially rigid substrate and separated laterally from one another, thereby forming a two dimensional array of the individual actuators, each of the actuator element sections is coupled to a corresponding one of the mirrors,

wherein when selected ones of the electrode pairs are energized respective ones of the individual actuators move respective ones of the mirrors with respect to the surface of the substrate, such that the incident wavefront is modulated to produce an output wavefront.